In the Claims:

Please cancel claim 3 without prejudice.

Please amend claims 1, 2 and 4-18 as follows. In accordance with the Revised Format of Amendments, all of the claims are reproduced below with an indication of their status.

Sub cl

1. (Currently Amended) A moving picture encoding apparatus for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal,

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wherein said block significance determining means calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block.

2. (Currently Amended) A moving picture encoding apparatus in accordance with claim 1, wherein

the block significance determining means ~~includes:~~

~~block feature calculating means for calculating for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block; and~~

~~significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating block significance for each block.

3. (Cancelled)

4. (Currently Amended) A moving picture encoding apparatus ~~in accordance with claim 1~~ for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal, wherein

the block significance determining means ~~includes: block feature calculating means for calculating~~ calculates for each block a block feature which is a quantity indicating power of a signal obtained by passing intra-block signals through a band-pass filter; and ~~significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating block significance for each block.

5. (Currently Amended) A moving picture encoding apparatus for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to block information and predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for generating the block information indicating power of an error between frames and a quantity of motion generated during a block encoding operation and sending the block information to the block significance determining means, for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting, and for executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal,

wherein said block significance determining means calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block.

6.　(Currently Amended) A moving picture encoding apparatus in accordance with claim 5, wherein

the block significance determining means ~~includes~~:

~~block feature calculating means for calculating for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block;~~

~~first significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating first block significance for each block;

~~visual deterioration calculating means for calculating~~ calculates for each block, according to the block information, a quantity of visual deterioration representing a degree of visual picture deterioration when a forecast error signal is lost;

~~second significance generating means for comparing~~ compares the quantity of visual deterioration with one or more threshold values and thereby generating second block significance for each block; and

~~block significance totaling means for combining~~ combines the first block significance with the second block significance and supplying resultant block significance to the map generating means.

7. (Currently Amended) A moving picture encoding apparatus ~~in accordance with claim 5~~ for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal, wherein

the block significance determining means ~~includes~~:

~~block feature calculating means for calculating~~ calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block;

~~first significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating first block significance for each block;

~~visual deterioration calculating means for calculating~~ calculates for each block a quantity of visual deterioration representing a quantity of power of an error between a block in the input image signal and a block in a reference frame, the blocks being respectively at the same position;

~~second significance generating means for comparing~~ compares the quantity of visual deterioration with one or more threshold values and thereby generating second block significance for each block; and

~~block significance totaling means for combining~~ combines the first block significance with the second block significance and supplying resultant block significance to the map generating means.

8. (Currently Amended) A moving picture encoding apparatus ~~in accordance with claim 5~~ for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal, wherein

the block significance determining means ~~includes~~:

~~block feature calculating means for calculating~~ calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block;

~~first significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating first block significance for each block;

~~visual deterioration calculating means for calculating~~ calculates for each block a quantity of visual deterioration representing a quantity of power of an error between a block in the input image signal and a block in a reference frame obtained by inter-frame forecast processing, the blocks being respectively at the same position;

~~second significance generating means for comparing~~ compares the quantity of visual deterioration with one or more threshold values and thereby generating second block significance for each block; and

~~block significance totaling means for combining~~ combines the first block significance with the second block significance and supplying resultant block significance to the map generating means.

9.   (Currently Amended) A moving picture encoding apparatus ~~in accordance with claim 5~~ for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal, wherein

the block significance determining means ~~includes~~:

~~block feature calculating means for calculating~~ calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block;

~~first significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating first block significance for each block;

~~visual deterioration calculating means for calculating~~ calculates for each lock a quantity of visual deterioration representing a quantity obtained by weighting, according to a quantity of motion of a block, power of an error between a block in the input image signal and a block in a reference frame, the blocks being respectively at the same position;

~~second significance generating means for comparing~~ compares the quantity of visual deterioration with one or more threshold values and thereby generating second block significance for each block; and

~~block significance totaling means for combining~~ combines the first block significance with the second block significance and supplying resultant block significance to the map generating means.

10. (Currently Amended) A moving picture encoding apparatus ~~in accordance with claim 5~~ for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal, wherein

the block significance determining means ~~includes~~:

~~block feature calculating means for calculating~~ calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block;

~~first significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating first block significance for each block;

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~~visual deterioration calculating means for calculating~~ calculates for each block a quantity of visual deterioration representing a quantity obtained by weighting, according to a quantity of motion of a block, power of an error between a block in the input image signal and a block in a reference frame obtained by inter-frame forecast processing, the blocks being respectively at the same position;

~~second significance generating means for comparing~~ compares the quantity of visual deterioration with one or more threshold values and thereby generating second block significance for each block; and

~~block significance totaling means for combining~~ combines the first block significance with the second block significance and supplying resultant block significance to the map generating means.

11. (Currently Amended) A moving picture encoding apparatus ~~in accordance with claim 5~~ for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

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moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal, wherein

the block significance determining means ~~includes~~:

~~block feature calculating means for referring~~ refers to information of a change in luminance of intra-block signals and a luminance level, thereby generating sensitivity information for the information according visual characteristics of a human, and calculating the sensitivity information as a quantity of a block feature;

~~first significance generating means for comparing~~ compares the block feature with one or more threshold values and thereby generating first block significance for each block;

~~visual deterioration calculating means for calculating~~ compares for each block, according to the block information, a quantity of visual deterioration representing a degree of visual picture deterioration when a forecast error signal is lost;

~~second significance generating means for comparing~~ compares the quantity of visual deterioration with one or more threshold values and thereby ~~generating~~ generates second block significance for each block; and

~~block significance totaling means for combining~~ combines the first block significance with the second block significance and ~~supplying~~ supplies resultant block significance to the map generating means.

12. (Currently Amended) A moving picture encoding apparatus for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means for generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

refresh history determining means for temporarily keeping therein the refresh map signal from the map generating means, referring to history of the refresh map signal and a refresh signal, modifying a value of forced refresh priority indicated by the refresh map signal, and thereby generating a modified refresh map signal;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating the refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal,

wherein the refresh history determining means includes a map history memory that refers to the refresh map signal from the map generating means and the refresh signal from the adaptive refresh signal generating means, thereby updating history, beginning at a start of encoding processing, of a refresh map, and storing therein the refresh map.

13. (Currently Amended) A moving picture encoding apparatus in accordance with claim 12, wherein

the refresh history determining means includes:

~~a map history memory for referring to the refresh map signal from the map generating means and the refresh signal from the adaptive refresh signal generating means, thereby updating history, beginning at a start of encoding processing, of a refresh map, and storing therein the refresh map;~~

a refresh signal history memory for storing therein history of the refresh signal; and

a map modifying section for referring to the map history stored in the map history memory and the refresh history stored in the refresh signal history memory and thereby modifying forced refresh priority indicated by the refresh map signal from the map generating means.

14. (Currently Amended) A moving picture encoding method for encoding successive input image signals, comprising:

determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

generating, according to the block significance, a refresh map signal representing priority of refresh processing for each block;

referring to refresh priority indicated by the refresh map signal and an allowed number of blocks for refresh processing in a frame to be encoded, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal,

wherein said block significance determining step calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block.

15.(Currently Amended) A moving picture encoding apparatus for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

adaptive refresh generating means for referring to refresh priority indicated by the block significance, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an intra-frame forecast encoding operation for a block not specified by the refresh signal,

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wherein said block significance determining means calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block.

16. (Currently Amended) A moving picture encoding method for encoding successive input image signals, comprising:

determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

referring to refresh priority indicated by the block significance, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal,

wherein said block significance determining step calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block.

17. (Currently Amended) A moving picture encoding apparatus for encoding successive input image signals, comprising:

block significance determining means for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

refresh signal generating means for generating, according to the block significance, a refresh signal representing priority of refresh processing for each block;

adaptive refresh signal generating means for referring to refresh priority indicated by the refresh signal, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

moving picture encoding means for conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal,

wherein said block significance determining means calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block.

18. (Currently Amended) A moving picture encoding method for encoding successive input image signals, comprising:

determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

generating, according to the block significance, a refresh signal representing priority of refresh processing for each block;

referring to refresh priority indicated by the refresh signal, selecting a block for refresh processing, and generating a refresh signal specifying the block for refresh processing; and

conducting an intra-frame encoding operation for a block specified by the refresh signal and for appropriately selecting and executing an intra-frame encoding operation or an inter-frame forecast encoding operation for a block not specified by the refresh signal,

wherein said block significance determining step calculates for each block a block feature which is a quantity representing a feature of signal distribution of the block and a visual characteristic of the block.